Ephéméride de la 2e Comète pour 0h Temps Moyen de Berlin.

	R.A.	Decl.	Log Δ.	Eclat.
	° ′	° ′		
1862, Nov. 30	208 59·9	−12 56·4	0·2153	1
Déc. 4	209 13·6	−15 39·7	0·1853	„
8	209 29·7	−18 48·4	0·1520	1·5
12	209 50·1	−22 58·4	0·1068	„
16	210 18·1	−26 55·5	0·0750	2·5
20	210 58·8	−32 17·7	0·0314	„
24	212 2·5	−38 54·3	9·9854	4·0
28	213 49·8	−47 3·8	9·9394	„
1863, Jan. 1	217 13·0	−57 0·7	9·8975	6·2
28	15 31·6	−45 25·6	0·0043	2·8
Fév. 17	20 7·2	−24 40·8	0·2091	0·8

"Tandis que la première comète sera visible dans nos observatoires boréals, l'autre disparait déja au milieu de Décembre par suite de sa déclinaison australe, mais elle va reparaître probablement au milieu de Février."

A few Notes on Prof. C. P. Smyth's Experiences with the Elchies Refractor. By the Rev. W. R. Dawes.

In the interesting account given by Professor C. Piazzi Smyth in the *Monthly Notices* for November last of his "Experiences with the Elchies equatoreally mounted Refractor of 11 inches aperture," he refers to a group of stars, of which P. i. 222, is the brightest, as having very surprisingly varied in their magnitudes since they were measured by his Father in 1834, in whose "Cycle" they form No. 78. This led me to give them an early examination; and I was astonished to find that no perceptible variation had taken place. On comparing the object presented to my view in my 8¼-inch refractor, with a power of only 94, with the Professor's account of it and with Admiral Smyth's measures, I immediately perceived that the Elchies Refractor had not shown the star B at all!—which is the more surprising as it was obvious enough in my telescope at the first glance with so low a power. Moreover, in the "Cycle" there is a transposition of the magnitudes and colours of A and D,—the latter being P. i. 222, a star rather below the 6th magnitude. This mistake, combined with the absence of B in his telescope, has led the Professor to surmise a total change in the group. The three stars to the south of P. i. 222, form the triple star Σ 196; and the fol-

lowing comparison of magnitudes, position, and distances will show that all the components are *in statu quo*:—

Σ 196; $\alpha = 1^h\ 51^m\ 59^s{\cdot}5$; $\delta = +20°\ 20'\ 32''$; Epoch 1863·0.

	Magnitudes.				Positions.				Distances.			
	Σ.	Sm.	*Sm.*	D.		Σ.	Sm.	*Sm.*	D.	Σ.	Sm.	*Sm.*	D.
A	8½	9	12	9									
B	11	15	not seen	10½	A B	55°·53..	53°·0..	... ..	53°·7	2″·37..	2″·5..	... ..	2¼ ±
C	9¼	10	12	9¼	A C	167°·38..	165°·0..	169°·25..	165°·6	39″·46..	40″·0..	36″·94..	36″·2 ±
D	...	6	7½	6¼	A D	...	..359°·2..	360°·35..	361°·6	...	..165″·0..	880″·54..	182″·5 ±

My positions and distances were only single measures with a very low power, for the sake of certain identification. Struve has not included the bright star D, which is, in fact, too distant to belong properly to the object he measured. How it should have happened that, though the group was so carefully examined with the Elchies Refractor, that fine instrument failed to show the star B, remains to be explained; for it certainly ought to be obvious enough in such a glass. It is an important fact, however, as showing how unsafe it is, because an object was not seen when it might have been supposed that it could not possibly have escaped observation, to conclude from this that it must therefore be variable in brightness.

With reference to the visibility of such very minute stars as are many of those which are adduced in proof of the optical power of the Elchies Refractor, it would, I think, be a great mistake to assume as certain, or even as very probable, that, because the existence of such minute specks, at a distance of one or two minutes, is not recorded, *therefore* they were not seen; and it would be a still greater mistake to assume that they *could not* have been seen, or even micrometrically measured, with the instruments in use, if the design of the observers had been to test the optical powers of their telescopes. For instance: as the group round P. xxi. 312, contains some of the smallest stars quoted as discovered by the Elchies Refractor, I turned my telescope upon it; and though the night was rather hazy and the star nearly four hours from the meridian, all the stars seen at Elchies were brought out without the slightest difficulty with power 94, except C, which, being pretty near the brightest star, required a higher power to draw it out.

The most valuable property in a telescope is undoubtedly a *fine sharp definition*; and wherever this exists, even in an ordinary degree, a very simple calculation will show of what magnitude a star must be to be visible with any given aperture. Thus an object-glass of 11 inches in diameter will show a star whose magnitude is about 12¼ of Struve's scale, or 18½ of Sir John Herschel's. Nor is the visibility of such a star, when *isolated*, greatly affected by the quality of the object-glass, unless very bad indeed; but it is far otherwise when a very

small star is within 2″ of one much brighter than itself; for then the visibility of the small star will chiefly depend on the fine definition of the brighter.

As there are now so many large telescopes, both refractors and reflectors, in existence and in process of manufacture, I hope soon to present to the Society a list of objects most suitable for severely testing their powers of definition, and well situated for observation in this latitude.

Hopefield Observatory, Haddenham, near Thame,
Dec. 10, 1862.

RECENT PUBLICATIONS.

The Earth and its Mechanism; being an Account of the various Proofs of the Rotation of the Earth: with a Description of the Instruments used in the Experimental Demonstrations. To which is added, the Theory of Foucault's Pendulum and Gyroscope. By H. Worms, Esq., F.R.A.S., F.G.S. London, 1862.

The work is intended as a complete collection of the various demonstrations of the Earth's Rotation, and the theorems connected therewith; the principal object being to promulgate a knowledge of the more recent discoveries and experiments relating to this branch of science. Thus particular attention is drawn to Arago's application of Wheatstone's revolving mirror for the measurement of the velocity of light. A minute account is given of the latest experiments on falling bodies, made by Prof. Reich in the mines at Freiberg, in addition to those of Benzenberg and Guglielmini; the phenomena exhibited by Foucault's pendulum and gyroscope are carefully explained, &c. The second part, intended for the perusal of the mathematical student, gives, from Hansen's *Theorie der Pendelbewegung* (Danzig, 1853), with some omissions and additions, an investigation of this dynamical problem of the motion of a pendulum as affected by the rotation of the Earth.

Annals of the Astronomical Observatory of Harvard College, Vol. III., Cambridge (U. S.), 1862.

The volume has the second title, "Account of the Great Comet of 1858, by G. P. Bond, Director of the Observatory of Harvard College."